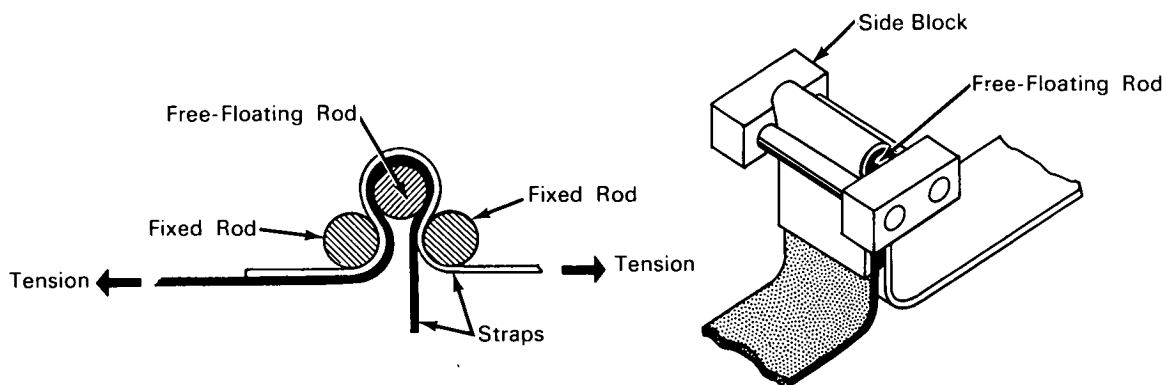


# NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the NASA space program.

## Buckle Joins Web Straps Quickly, Adjusts Easily



**The problem:** Joining web straps of the type used to hoist heavy loads. For many hoisting operations, two straps may have to be brought around the load and then joined. Other hoisting work may require that the straps be adjusted a number of times, or over a considerable length along the strap. Strapping equipped with standard buckles will rarely meet these needs.

**The solution:** A buckle that permits two straps to be quickly joined, then held by the combined forces of strap load tension and friction.

**How it's done:** A simple device consisting of two rods fixed to side blocks, approximately forming a block "O", plus one other rod comprise this novel buckle.

The first step in joining two straps is to lay out the ends so they overlap at least 18 inches. Then the overlapped portion of the strapping is folded up at the midpoint and the O-shaped device is slid down over the folded portion. A short rod is then inserted

into the folded strapping so that both straps go around the outer surface of the short rod. The rod is free floating and is short enough to pass between the side blocks.

When the straps are adjusted, tension is exerted on both straps. This pulls the free floating rod down so that the straps contact the two fixed rods. Spacing between the fixed rods is such that the free floating rod, plus the thickness of the two straps, will not pass between the fixed rods. As long as the straps are under tension, clamping pressure is exerted by the rods on the straps. This clamping force develops a static frictional force between the two straps. Frictional force will always be greater than the tension in the strap.

Although this buckle was designed for web straps, it is also suitable for other flexible strapping including leather or plastic when the straps are used in tension.

(continued overleaf)

**Notes:**

1. Development of this innovation was intended for hoisting large, irregular shapes such as rocket motors but it would be suitable for many loads encountered in warehouse operations or longshore hoisting.
2. For further information about this innovation inquiries may be directed to:  
Technology Utilization Officer  
Langley Research Center  
Langley Station  
Hampton, Virginia 23365  
Reference: B64-10119

**Patent status:** NASA encourages the commercial use of this innovation. No patent action is contemplated.

Source: Chance Vought Corporation  
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